

Notice of Allowability

Application No.

10/079,513

Examiner

Damon Conover

Applicant(s)

NAJMAN ET AL.

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2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 20 February 2007.
2. ☒ The allowed claim(s) is/are 1-3 and 5-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 February 2007 has been entered.

Response to Arguments

2. Based on the applicant's amendments to independent claims 1, 7, and 13, see page 10, paragraph 2, filed 20 February 2007, the rejections of claims 1-3, 5-9, 12-18, and 20 have been withdrawn.

Reasons for Allowance

3. Claims 1-3 and 5-20 are allowable over the prior art of record. The following is an examiner's statement of reasons for allowance:

In independent claims 1, 7, and 13, the applicants disclose methods of automatically locating a table in a document. The methods include steps of defining a plurality of crops of the document where at least one crop corresponds to a corner of the document, determining the location of lines whose length are greater than or equal to a predetermined threshold value for each crop of the document, evaluating at least one parameter indicative of the density of the lines, and deciding which one of the defined plurality of crops includes the location of the table, based on the evaluation of the at

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least one parameter indicative of the density of the lines. The step of evaluating at least one parameter indicative of the density of the lines includes defining groups of the lines. In this step, two or more adjacent lines are allocated to a common group corresponding to a set of lines, if the separation between them is less than a reference value.

The closest reference of Ikemure discloses a method and apparatus for recognizing a table in an area of a scanned document (abstract). Ikemure describes that the table is detected by counting the number of black pixels associated with the lateral and longitudinal lines N_{p1} , counting the number of black pixels that are adjacent to each other in the lateral direction N_{p2} , and calculating the ratio. If the ratio is higher than a prescribed value, it is recognized as a table (column 3, lines 28-50). Ikemure further discloses an area classifying means for defining rectangular areas (crops) that contain potential tables (column 6, lines 48-59).

Abe discloses a technique for determining the size and location of a table, block, or line pattern (column 3, lines 2-3). The length of the line is compared to a threshold l_{th} to determine if it could be part of a table (column 3, lines 13-16). If the separation between adjacent lines is less than a predetermined amount δd , the separate lines are linked to form one line (column 3, lines 19-21). If the two lines are vertically separated by less than a predetermined amount δV , the lines are identified as a single line segment (column 3, lines 24-26).

Shimomura discloses an apparatus for extracting a text region from a document image containing texts, drawings, and pictures (column 1, lines 8-12). Shimomura

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describes that a line density calculation is used for extracting a segmented region from a document image (column 2, lines 26-31).

Werth et al. disclose a method of generating a data input form using a computer system (column 1, lines 48-49). Werth describes that registration marks are provided in the four corners of a form to provide locating and identification information for the form to the computer system (column 5, lines 51-56). During processing, the form is read from top to bottom, left to right in order to capture all four corner marks (define a plurality of crops) (column 5, line 65 – column 6, line 2).

Stinger (U.S. Patent 6,757,870) discloses a method for recognizing tables within a document (column 1, lines 7-10). Stinger describes that the change in space density between lines may be used as a feature to identify tables (column 2, lines 54-65). The examiner reads this as defining lines as being in a common group if the separation between them is less than a predetermined value. However, the examiner does not believe that it would have been obvious to combine Stinger et al. with the combination of Ikemure, Abe, Shimomura, and Werth et al. or with the combination of Ikemure, Abe, Shimomura, and Tanaka et al., in order to evaluate at least one parameter indicative of the density of lines by allocating the lines to a common group, if the separation between the lines is less than a reference value, in combination with the other claimed limitations.

Independent claim 11 recites the limitations of: a deciding step that determines whether there is a crop having an evaluated thickness sum that is significantly greater than a corresponding evaluated thickness sum for the other crops in the event that there

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is no crop having a representative group with the greatest number of lines, and if there is a sum that is significantly greater than a sum for the other crops, designating that crop as the location of the table, or otherwise generating a signal indicative of failure to locate the table.

The closest reference of Ikemure discloses a method and apparatus for recognizing a table in an area of a scanned document (abstract). Ikemure describes that the table is detected by counting the number of black pixels associated with the lateral and longitudinal lines N_{p1} , counting the number of black pixels that are adjacent to each other in the lateral direction N_{p2} , and calculating the ratio. If the ratio is higher than a prescribed value, it is recognized as a table (column 3, lines 28-50). Ikemure further discloses an area classifying means for defining rectangular areas (crops) that contain potential tables (column 6, lines 48-59).

However, Ikemure does not teach the deciding step limitation that details what occurs in the event that no crop is initially identified as including a table, in combination with the other claimed limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

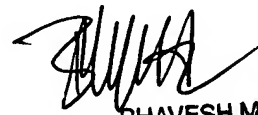
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Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Damon Conover whose telephone number is (571) 272-5448. The examiner can normally be reached Monday – Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached at (571) 272-7453. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866) 217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call (800) 786-9199 (IN USA OR CANADA) or (571) 272-1000.


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